Inventory Management Operator's Manual

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INFO-DESIGNS MAS INVENTORY MANAGEMENT SYSTEM

COMMODORE 64

OPERATOR'S GUIDE

Version 1.0

For the Commodore 64 Computer

and the VIC 1541, CBM-2031, CBM-4040 Disk Drives,

and the VIC-1525 or Any Properly Interfaced Printer

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I. INTRODUCTION

A. Overview

The Info-Designs MAS Inventory Management System is an extremely powerful inventory control system adapted from a large, mainframe computer system, and implemented on the revolutionary Commodore 64 microcomputer system developed by Commodore Business Machines.

The system utilizes a set of floppy disks to perform the fundamental inventory control functions. The programs reside on one disk, and inventory file resides on the other.

The exact capacity configuration, is as follows:

Maximum Records Storage Capacity(per disk)

	CBM 1541/2031/4040
Inventory Items	1800

The system provides these advanced capabilities:

- Maintains perpetual inventory records for all stock items
- Processes stock receipts, stock issues, stock orders, and stock adjustments with full audit trail
- Utilizes scientific inventory management principles
- Automatically calculates daily usage, re-order levels, and economic order quantities
- Provides "real-time" updating of inventory file balances for current management information
- Maintains average cost automatically, and up to 3 retail prices including price break formula
- Provides comprehensive management reporting, including: Inventory Summary, Re-Order Report, Shortage Report, Stock Status Report, Physical Inventory Report, Price Catalog, Sales Analysis Report, etc.

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The Inventory Management System is part of a total Management Accounting System which includes an Accounts Receivable Module, Accounts Payable Module, Payroll Module and General Ledger Module. The overall system has been designed to allow an automated interface between specific modules when installed. However, each module can be implemented and operated independently of the others until such time as you decide to incorporate automated interface into your operation.

The balance of this manual contains information essential to the smooth conversion and ongoing effectiveness of the Inventory Management application, including:

- Professional Products and Services, which outlines the additional support offered to you by **Info-Designs, Inc.** in its continuing effort to ensure you get a maximum return on your investment in microcomputer processing (see Section I-B)

- System Conventions, which highlights key technical and operating characteristics of the MAS 64 application that are used to provide consistency of operation across all **Info-Designs** applications (see section I-C)

- Inventory Management Overview, which describes the underlying theory and scientific principles of inventory management that are used by the system (See Section II)

- System Functions, which describes the purpose, timimg and features of the performed by the application (see section III)

- System Start-Up, which provides guidelines on how to initialize your equipment and files to prepare for day to day operations (see section IV)

- Inventory Management Procedures, which outlines the operating guidelines to be followed during the conversion of your existing inventory records, as well as performing daily, and monthly inventory management activities (See Section V)

- Management Reports, which describes the purpose, timing, execution and format of those reports/documents produced by the system to control your operation (see section VI)

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- Troubleshooting Guide, which describes particular error conditions, their probable cause and required action to resolve the errors that may occur in day to day processing (see section VII)

- Product Service Documentation, which provides a convenient way for you to fulfill basic administrative requirements concerning ongoing support, including Software registration and Product/Service ordering (see section VIII)

- Compatible Forms, which identifies the special forms used in the Inventory Management System, the only approved supplier for those forms and a convenient toll-free number to use in ordering them (see Section IX)

These and remaining sections of the Operator's Guide will significantly contribute to the future success of your operation. Please take an appropriate amount of time to read them. Of special importance is the section on converting and maintaining your inventory records in accordance with proven inventory management practices (Section IV). The decisions you make in these areas are instrumental to a sound inventory and financial reporting system that is essential to the ongoing management of your business.

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B. Professional Products and Services

As part of **Info-Designs** ongoing effort to provide the highest quality microcomputer applications in the marketplace, we have developed a range of supplemental products and services that are designed to maximize both the convenience and effectiveness of your business operation. These products and services constitute our Professional Products and Services Plan and are available immediately. They include:

- A special communications package allowing you to transmit file information from one Commodore 64 to another (e.g. home to office)

- A full service telephone consulting capability that provides assistance to our customers during both installation and ongoing operation

- A rapid disk replacement order process to ensure continued operations on your site

- A forms and supplies starter kit for customer operations, as well as a convienent reordering mechanism

All are available now. A more detailed description of the services and how they may be ordered is included in the section entitled Professional Products and Services Plan (Section VIII). Also, you will find the Software Registration Form to be completed by you and returned to **Info-Designs, Inc.**

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C. System Conventions

In order to simplify the description of how certain information is entered into the system, the following conventions are used in the documentation:

1. Special typewriter keys

There are only two special keys to use other than the normal typewriter keys. These keys are indicated by the use of this symbol **<KEY NAME>** to differentiate the name of the key from actually typing the word.

Keys	Purpose
<RETURN>	Use after entering information (see next paragraph)
<INST/DEL>	Deletes last character
<SHIFT>	Never used. All information is entered in "lowercase" letters. All reports are automatically printed out in CAPITAL LETTERS.

2. **<RETURN>** key

When the computer displays asterisks (******), it indicates it is waiting for a response or input from the operator.

If the alpha or numeric information does not fill all the positions indicated by the asterisks, then you must press the **<RETURN>** key after entry.

Example: When the computer asks for stock number, the screen looks like this:

```
Stock Number  : *********
```

Notice that the blinking cursor tells you where your characters will type. This is indicated by an underscore (_) in this documentation. You would type Stock No. A123 as:

```
Stock Number  : ********
                a123<RETURN>
```

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because the number is less than the number of asterisks (8). If the stock number was AB-12345, and the input completely filled the asterisks, such as:

****
ab-12345

the computer will automatically advance to the next field on the screen.

Remember, when your input fills all the asterisks, you do not have to press the **<RETURN>** key. With a little practice, this convention will become almost second nature.

When entering data, the **<RETURN>** key can be used to skip a field. Just press **<RETURN>** and the program will skip to the next field. For the first field of a new screen, pressing the **<RETURN>** key without any data allows you to return to the previous menu. As a general rule, when in doubt about where you are in the program or how to get to a different operation, just press **<RETURN>** until you get to the correct menu.

3. <RESTORE> Key

   NEVER PRESS THIS KEY. It may cause your computer to perform abnormally.

4. Prompting messages

The computer will remind you what information it is expecting by the use of "prompting" messages. These messages will also "flash" when you have made an error. This flashing will alert you to re-enter the information correctly.

These messages appear directly under the screen title. For example:

STOCK RECEIPTS
INVALID CHECK DIGIT

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5. Disk errors

The system utilizes floppy magnetic disks for storage of all data. Occasionally, a disk may drop data and cause an error. For this reason, **IT IS IMPERATIVE THAT AT LEAST TWO (2) BACKUP DISKS ARE MAINTAINED FOR EACH DATA DISK.** See Section II, System Menu, for Disk Backup Procedures.

If the following conditions occur, it means a disk error has occurred:

- 4040, Center red light stays on

- 1541, Rightmost light turns red and blinks

A listing of all disk errors may be found in your **Commodore Floppy Disk User's Manual** for the 1541, 2031, or 4040 Disk Drives and is reprinted in Section VII of this guide. When an error occurs, the system will return to the main menu. Re-insert the disk(s), and try the program again. If repeated tries do not work, then you probably have a bad disk and must use one of your back-up disks.

Additionally, there is a series of special error messages concerning the operation of the Inventory Management System. They are described in Section VII, Troubleshooting Guide.

Note: There are several things the user can do to avoid disk data errors. They include:

a. Handle the diskette with care

   . Write on labels first, then affix them to the diskette
   . Do not touch the exposed surface of the diskette
   . When not being used, keep the diskettes in their protective jackets and store them in a cool dry area
   . DO NOT remove diskette from drive during operation

b. Use high quality disks (e.g. Dysan, 3M)

c. Have your disk drive serviced periodically to ensure that it is clean and operating according to specified tolerances

   Note: Additional disk and disk drive guidelines for proper care may be found in your Commodore 64 Floppy Disk User Manual.

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6. Program Disk

Both sides of the MAS 64 Inventory Management program disk are used to store programs, as opposed to using two separate disks. During normal operation of the system, you may be required to remove the program disk, turn it over, and re-insert it in the drive.

D. Equipment Requirements

The MAS 64 Inventory Management System has been designed to allow significant flexibility in configuring your hardware. Of major importance is the capability to process the application using **1 disk drive only.**

Specific equipment requirements are:

- Commodore 64 Keyboard/Computer

- Color or Monochrome Monitor

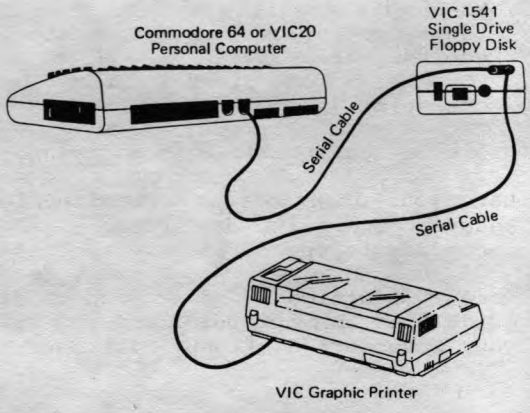
- Disk Drives

  . 1 or 2 1541's
  . 1 or 2 2031's with IEEE interface
  . 1 4040 with IEEE interface

- Printers

  . 1525/4022/8023P matrix
  . NEC Spinwriter, Diablo, or any ASCII printer that is properly interfaced

Install and check-out your equipment by following the equipment operating instructions provided by Commodore Business Machines.



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II. INVENTORY CONTROL OVERVIEW

Inventory in your business may represent the largest single investment in your assets, and, in many cases, is managed by "gut-feel". Scientific inventory control involves the application of tried and proven approaches to help manage your inventory investment.

Scientific inventory management has advantages for every company, but until recently the cost of the hardware and software to computerize the process was outside the means of most small to medium size businesses.

The MAS 64 Inventory Management System now sets a **new standard of excellence** in Software for microcomputers. This system allows your business to benefit by utilizing the same advanced principals of inventory management used by Fortune 500 companies.

A. Theory

There are many excellent books written about scientific inventory management. Certainly, the subject cannot be covered sufficently in this manual. But we will touch upon some of the basic principles that govern the design and implementation of the MAS 64 Inventory Management System.

There is one general characteristic that applies to most inventories: 85% of the annual dollar usage in a given inventory is usually concentrated in 15% of the items.

This usage distribution suggests a different treatment for different segments of inventory. A common term for this phenomenon is the classification of inventory by "A", "B", and "C" parts. "A" parts usually represent the fewest items but account for a high percentage of the total inventory usage; "C" parts represent the most items which account for the lowest usage. Therefore, "A" parts should be controlled more closely and reviewed more frequently.

Without a computer, determining which parts are of high usage would require many hours of manual review and evaluation, and would have to be repeated quite frequently to determine any changes in trends or usage. A computerized inventory control system provides this review automatically and systematically as part of its reporting function. It is then up to management to use this information effectively to better control the assets of the company.

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Another major function of an inventory management system is to recognize, by using a consistent set of rules, when an inventory item should be re-ordered to maximize customer service, while mimimizing total inventory. Again, to juggle inventory levels vs. customer service would require extensive manual effort, and because inventories are dynamic, the target levels of inventory are constantly changing.

The MAS 64 Inventory Management System uses the principle of **Available Balance** and **Re-Order Levels** to determine **when to order more parts.** The system uses the well-known Wilson Lot Size Formula and applies minimum/maximum lot size adjustments to determine **how much to order when more parts are needed.** Neither of these principals are novel. Both are used in thousands of sophisticated businesses everyday to help manage inventory on an exception basis, thus allowing management to focus its time on major pay-off decisions.

B. Inventory Identification

A critical element of controlling inventory is **identifying** inventory uniquely. Many schemes are possible for identification, but most schemes cannot prevent possible duplication of numbers. For example, if manufacturer's numbers are used, there exists the possibility that two different manufacturers may use the same number, thereby negating the uniqueness.

A very workable scheme used by large main-frame inventory control systems is to assign a unique non-significant numeric identification to each inventory item. Then, using a computer algorithm, calculating a **check-digit** which is also unique to the other digits of the number. The check digit scheme is used by this system.

Part Numbers may be four or five digit seed numbers followed by one calculated check-digit. For example, the seed **1001** will calculate a check-digit of **7.** The Part Number is then **10017.** By utilizing this scheme, inventory items can be assigned in any sequence, and each number has a "built-in" check feature to ensure integrity. Also, keyboard entry of numeric data is much faster than alpha/numeric data.

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C. Ordering Concepts

Now that we have discussed the importance of segmenting inventory, and a unique identification for each inventory item, we will discuss the basic parts ordering concepts utilized by the system.

The system assumes a fairly uniform demand for parts based on the current usage in a given month. The field in the Inventory File that keeps track of this usage is **Monthly Issues.** Every time an item is picked, the **Monthly Issue** counter for that part is incremented by 1. At the end of the month, the system calculates a **Daily Dollar Usage** by taking the monthly issues and dividing by the average number of work days (21) in a month. The units are then converted to dollar value by using the **Average Cost** of the part.

This usage is a key element in determining a **Re-Order Level** (ROL) for each part. The ROL is calculated by using the following formula:

ROL = [Order Leadtime + Safety Stock (in Days)]
x Daily Usage

This quanity represents the net short term availability of an item to meet customer demand. It considers **Reservations** which are backorders for parts that either cannot be filled due to shortage, or are waiting to be picked.

Another concept used in the system is **Available Balance** (AVAIL). It is defined as follows:

AVAIL = Stock-on-Hand + Stock-on-Order - Reservations

This quantity represents the net short term availability of an item to meet customer demand. It considers **Reservations** which are backorders for parts that either cannot be filled due to a shortage, or are waiting to be picked.

The **Available Balance** also recognizes that orders placed with vendors will soon be available to meet demand. Therefore, by using **Available Balance** as opposed to **Stock-on-Hand** as a measure of inventory availability, management has a more accurate picture of the inventory situation.

The system recognizes the need for an order when the **Available Balance** falls below the **Re-Order Level** for an item. At this point, it must then determine **how much to order.**

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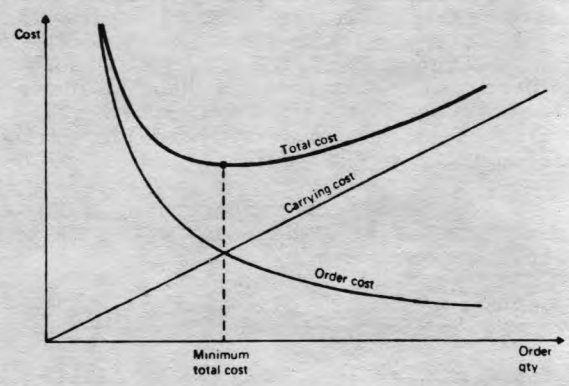
The basic principle behind using an **Economic Order Quantity** (EOQ) as the recommended order amount is that the EOQ represents the theoretical optimum quantity to order, considering these factors:

a) Cost of Ordering vs.
b) Cost of Carrying Inventory

These two cost factors vary inversely as follows:



The Wilson Lot Size Formula is used to calculate the optimum order quantity which will minimize total costs -- ordering cost and holding cost. The exact formula is:

$$EOQ = \frac{2 \times O \times U}{H \times A}$$

where: O = Ordering Cost
U = Annual Usage of the Item
H = Holding cost (as a decimal)
A = Average Cost per part

The EOQ derived from this formula is then adjusted to be no less than a minimum days usage (as specified in the General Information File) and no more than 65 days worth of parts.

The EOQ is only a suggested order quantity. It does not consider future needs for the part, seasonality, special price breaks available, packaging requirements, or any number of other important factors in determining exactly how much to order.

The ultimate decision regarding the replenishment of inventory must be with the management of the company, not the computer. Remember, the computer is only a tool to provide additional information to management to assist in making these ordering decisions.

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III. SYSTEM FUNCTIONS

The Info-Designs Mas-64 Inventory Management System is a "menu-driven" system. The "menu" is a selection of computerized inventory control functions from which you can choose to process your information.

To keep the description of each function concise and precise, inventory control terminology is used in defining the systems functions. Be sure to thoroughly review Section II -- Inventory Control Overview for a brief discussion of the inventory theory and terminology used by this system.

The following is the menu for this system:

INVENTORY MANAGEMENT PROGRAM MENU

0) System Menu
1) Transaction Entry
2) Calculate Parameters
3) Print Reports

4) Inventory File Maintenance

5) General Information File
6) Configuration File Maintenance

Below is a brief description of each menu function.

0) System Menu

Purpose: The Systems Menu allows you to run any of the other system modules. These other systems may be purchased separately from your dealer:

1) General Ledger
2) Accounts Receivable
3) Accounts Payable
4) Payroll
5) Inventory Management
6) Electronic Calendar
9) Disk Backup

When: When you want to operate any other MAS modules or **back up your Data Disk**

Procedure: The System Menu is selected by entering **0** when you have the main menu for any module on the screen. Once the System Menu is available, enter the number of the operation you want to perform. The system will then prompt you for the required disk handling instructions.

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NOTE: THE ONLY TIME YOU SHOULD EVER REMOVE YOUR DISKS FROM THE SYSTEM IS WHEN YOU HAVE THIS MENU ON THE SCREEN. REMOVING DISKS ANY OTHER TIME CAN CAUSE YOU TO PERMANENTLY LOSE FILE INFORMATION!

Special Instructions for Disk Back-Up Operations

9 Disk Backup function is very important and is included with your system. It allows you to duplicate any data disk. As mentioned above, **IT IS IMPERATIVE THAT YOU HAVE AT LEAST TWO (2) BACK-UP COPIES OF EACH DATA DISK.**

Program disks are copy protected and cannot be duplicated. You may obtain security copies from **Info-Designs.** (See Section VII, Professional Products and Services Plan).

NOTE: DO NOT ATTEMPT TO COPY THE PROGRAM DISK. YOU COULD PERMANENTLY DAMAGE YOUR DISK DRIVES.

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For Two Drive Systems

When making a back-up copy on a brand new disk, you will have to use the **New** command **2.** This command will place formatting information on a new disk in drive 1 (left drive) so that it can then copy from drive 0. After the back-up copy is complete, the computer will check that a good copy was made. If not, a message will inform you "BAD COPY - RE-DO" and you should try copying again. If after two (2) tries, you still get a bad copy, then try using another disk (in drive 1) to copy on. Under certain circumstances, it is possible that the operating disk (in drive 0) is bad, and to recover you will have to use a previous back-up file.

Just follow the specific instructions on the screen when you use Systems Menu functions.

For One Drive Systems

The back-up can still be performed. However, it will involve six separate passes, each of which will require removing and inserting the original and back-up diskettes. When you are prompted for an **id number: enter a 2-digit number that is different than the id number you assigned for your I/C Data Disk.**

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1) Transaction Entry

Purpose: To enter transactions for stock receipts, stock issues, stock orders, and stock adjustments

When: Daily or when needed

Features: Validates part number check-digit, accesses the Inventory data base for Stock Number, Description, Current SOH, SOO, RES. Provides "real-time" update of the Inventory data base and a detailed audit trail of all transactions affecting changes in inventory balances or valuation. Provides capability to automatically maintain Average Cost for inventory by processing stock receipts at Actual cost and stock issues (parts relieved from inventory) at Average cost. Provides capability to automatically price and extend the retail value of inventory issued from the stockroom.

Sub-Menu Overview:

1) Stock Receipts (stock received into inventory)
2) Stock Issues (stock picked from inventory)
3) Stock Orders (vendor orders for replenishment stock)
4) Stock Adjustments (adjustments to stock-on-hand, stock-on-order, and reservation balances)

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Sub-Menu Detail:

1) Stock Receipts (stock received into inventory). The printer must be on for this function. The following screen format will be displayed (xxx indicates information retrieved from the inventory data base, *** indicates input information required by the operator):

STOCK RECEIPTS

```
Stk Numb  xxxxxxxx      SOH xxxxx
Desc      xxxxxxxxxxxx  SOH xxxxx
Unit/Mea  x             RES xxxxx
Vend/Com  xx

1) Part Number      : ******
2) Qty Received     : *******
3) Qty Rejected     : *******
4) Qty Accepted     : *******
5) Cur $Cost/Unit   : *******
6) Reference No.    : *******
```

The following edits are perfomed:

Data Field	Edit
Part Number	Must be numeric (no alpha characters) Must pass the check-digit test Must be within range established on the General Information File Must be on Inventory File

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Data Field	Edit
Qty Received	Must be numeric May be positive (+) or negative (-) May not be zero Maximum value: 9999 (Stock-on-order is reduced by this quantity)
Qty Rejected	Must be numeric May be positive (+) or negative (-) May be zero or <RETURN> Maximum value: 9999
Qty Accepted	Must be numeric Must equal Qty Rec - Qty Rej Maximum value: 9999 (Stock-on-hand is increased by this quantity)
Cur $Cost/Unit	Note: This represents the incoming cost of new stock. To value new stock at the same cost as current inventory, press <RETURN> -- and the current Average Cost will be displayed and used. To input new cost, enter value: Must be numeric Maximum value: $9999.999 (Note: costs are maintained to 3-decimal places for accuracy) The new cost will be averaged with the current cost (proportioned by the ratio of Qty Accepted to SOH) to calculate a new average cost
Reference No.	Enter an appropriate Reference No. for printing on the Stock Receipts Report. Usually Shipper No. or Receiver No. May be alpha/numeric No edits performed

After all information is entered, press **0** to save and record the transaction, or **9** to cancel and re-enter. Once recorded, the transaction is immediately updated on the Inventory File and the audit trail is printed on the Stock Receipts Report.

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To exit from this function, press **<RETURN>** for Part Number.

Sample printout of the Stock Receipts Report is shown in Section VI.

Sub-Menu Detail:

2) Stock Issues (stock picked from inventory). The printer must be on for this function. The following screen format will be displayed (xxx indicates information retrieved from the inventory data base, and *** indicates input information required by the operator):

```
STOCK ISSUES
-----------------------

Stk Numb  xxxxxxxx      SOH xxxxx
Desc      xxxxxxxxxxxx  SOH xxxxx
Unit/Mea  x             RES xxxxx
Vend/Com  xx

1) Part Number     : ******
2) Qty Issued      : *******
3) Reserved (Y/N)  : *******
4) $Sell/Unit      : *******
5) Reference No.   : *******
```

The following edits are perfomed:

Data Field	Edit
Part Number	Must be numeric (no alpha characters) Must pass the check-digit test Must be within range established on the General Information File Must be on Inventory File
Qty Issued	Must be numeric May be positive (+) or negative (-) May not be zero Maximum value: 9999 (Stock-on-hand is reduced by this quantity. Monthly and Y-T-D Issues are increased by this quantity)

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Data Field	Edit
Reserv (Y/N)	Must be **y** or **n** This tells the system whether this issue was previously reserved, and therefore is included in the RES balance. If **y** then the RES Qty will be reduced by the Qty Issued. RES will not be reduced to a negative number.
$Sell/Unit	Note: This represents the unit retail price of stock issued. To price stock at the retail price indicated on inventory, press **<RETURN>** -- and the appropriate retail price (based on the price break formula will be displayed) To input a specific price, enter a value: Must be numeric Maximum value: $9999.999 (Note: costs are maintained to 3-decimal places for accuracy) A new retail price in no way affects the inventory file. The only report affected is Stock Issues which shows both Retail Price, Cost and Gross Profit Margin percentage.
Referen No.	Enter an appropriate Reference No. for printing on the Stock Issues Report. Usually Invoice No. or Customer Reference May be alpha/numeric No edits performed

After all information is entered, press **0** to save and record the transaction, or **9** to cancel and re-enter. Once recorded, the transaction is immediately updated on the Inventory data base and the audit trail is printed on the Stock Issues Report.

To exit from this function, press **<RETURN>** for Part Number.

Sample printout of the Stock Issues Report is shown in Section VI.

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Sub-Menu Detail:

3) Stock Orders (vendor orders for replenishment stock). The printer must be on for this function. The following screen format will be displayed (**xxx** indicates information retrieved from the inventory data base, *** indicates input information required by the operator):

STOCK ORDERS

```
Stk Numb xxxxxxxx      SOH xxxxx
Desc     xxxxxxxxxxxx  SOH xxxxx
Unit/Mea x             RES xxxxx
Vend/Com xx

1) Part Number      : ******
2) Qty Ordered      : *******
3) $Cost/Unit       : *******
4) Vendor No        : *******
5) Reference No     : *******
```

The following edits are perfomed:

Data Field	Edit
Part Number	Must be numeric (no alpha characters) Must pass the check-digit test Must be within range established on the General Information File Must be on Inventory File
Qty Ordered	Must be numeric May be positive (+) or negative (-) May not be zero Maximum value: 9999 (Stock-on-order is increased by this quantity)
$Cost/Unit	Note: This represents current committed cost of stock ordered. To cost the order at the current cost indicated on inventory, press <RETURN> -- and the current average cost will be displayed and used. To input a specific cost, enter a value: e.g., $9.25

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Data Field	Edit
	Must be numeric Maximum value: $9999.999 (Note: costs are maintained to 3-decimal places for accuracy) A new committed cost in no way affects the inventory file. Only when stock is Received is the actual Cost significant. This new committed cost will appear on the Stock Orders Report.
Vendor No.	May be an appropriate vendor reference for printing on the Stock Orders Report. May be alpha/numeric No edits performed
Referen No.	May be an appropriate reference for printing on the Stock Orders Report. Usually Purchase Order Number. May be alpha/numeric No edits performed

After all information is entered, press **0** to save and record the transaction, or **9** to cancel and re-enter. Once recorded, the transaction is immediately updated on the Inventory data base and the audit trail is printed on the Stock Issues Report.

To exit from this function, press **<RETURN>** for Part Number.

Sample printout of the Stock Orders Report is shown in Section VI.

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Sub-Menu Detail:

4) Stock Adjustments (adjustments to stock-on-hand, stock-on-order, and reservations balances). The printer must be on for this function. The following screen format will be displayed (xxx indicates information retrieved from the inventory data base, *** indicates input information required by the operator):

STOCK ADJUSTMENTS

```
Stk Numb  xxxxxxxx      SOH xxxxx
Desc      xxxxxxxxxxxx SOH xxxxx
Unit/Mea  x            RES xxxxx
Vend/Com  xx

1) Part Number     : ******
2) S-O-H Adj       : *******
3) S-O-O Adj       : *******
4) Resrv Adj       : *******
5) Reference No    : *******
```

The following edits are perfomed:

Data Field	Edit
Part Number	Must be numeric (no alpha characters) Must pass the check-digit test Must be within range established on the General Information File Must be on Inventory File (Note: One or more adjustment fields may be entered)
S-O-H Adj	Must be numeric or blank May be positive (+) or negative (-) Maximum value: 9999 (Stock-on-hand is increased or decreased by this quantity)
S-O-O Adj	Must be numeric or blank May be positive (+) or negative (-) Maximum value: 9999 (Stock-on-order is increased or decreased by this quantity)

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Data Field	Edit
Resrv Adj	Must be numeric or blank May be positive (+) or negative (-) Maximum value: 9999 (Reservations are increased or decreased by this quantity)
Referen No.	May be an appropriate reference for printing on the Stock Adjustment Report, such as STK FND (stock found), ORD COR (order correction), etc. May be alpha/numeric No edits performed

After all information is entered, press **0** to save and record the transaction, or **9** to cancel and re-enter. Once recorded, the transaction is immediately updated on the Inventory data base and the audit trail is printed on the Stock Adjustment Report.

To exit from this function, press **<RETURN>** for Part Number.

Sample printout of the Stock Adjustment Report is shown in Section VI.

2) Calculate Parameters

Purpose: To automatically re-calculate daily usage, zero-out monthly issues, re-calculate reorder level, re-calculate economic order quantity, and zero-out Y-T-D issues

When: Monthly

Features: This is an extremely powerful function in the Inventory Mangement System. **IT MUST BE USED WITH GREAT CARE.** The function will automatically evaluate the current status of a stock item, then, based on the options selected by the user, will: re-calculate the daily usage, and/or zero-out the monthly issue counter, and/or re-calculate the reorder level, and/or re-calculate the economic order quantity. Yearly, ONLY, you should zero-out the Y-T-D issue counter. For a general description of the theory behind these parameters, and the specific formulas used, see Section II -- Inventory Control Overview.

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The function may be executed on the entire inventory file, or any subset of the file by using the powerful **Select** option. This option allows the user to specify any combination of up to 3 different inventory fields to use as criteria for selecting stock items. For example, you may want to re-calculate usage, re-order levels and economic order quantities only for parts that have a Commodity Code of **m** and a Bin Location of **s**. After you indicate which functions you want to perform, the system will give you the option of specifying this selection criteria.

Note: Re-calculating parameters for the entire inventory file can be quite time-consuming (approximately 4 seconds per item, or 900 items per hour). By selecting a sub-set of the file, you have better control over which items you want re-calculated and reduce the risk of a problem by reducing running time.

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Sub-Menu Overview:

1) Re-calculate Daily Usage
2) Zero Monthly Issues
3) Re-calculate ROL
4) Re-calculate EOQ

The system will give you the option of selecting one or more of these functions by displaying:

0=Exit 9=Continue
Enter Function Number *

Enter the appropriate function numbers that you want performed. When done, either press **0** to Cancel and Exit or **9** to Continue on to the selection option.

The system will then display:

0=All Items
Enter No. of Selection Fields *

Enter **0** to select (and process) All Items on the Inventory data base, or a number from **1** to **3** to specify the number of fields you want to use to select the sub-set of inventory records. For example, enter **2**:

The system will now display:

Field No.	Low Value	Hi Value
**	*******	*******
**	*******	*******

Field Selections:

1	p/n	2	stk#	3	desc	4	uom
5	v/c	6	lead	7	loc	8	pbds
9	retl	10	ret2	11	ret3	12	cost
13	usag	14	soh	15	soo	16	res
17	rol	18	eoq	19	m-is	20	y-is

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Now, enter Field No. as **1** through **20.** In our example, to select Commodity Code, enter **5**, then the Low Range and Hi Range for the search. In this example enter: **m** for Low Range and **m** for Hi Range. The first selection parameter is now specified. You may also enter **<RETURN>** for Hi Range, in which case it will automatically use the value place in Low Range. To specify the second selection parameter in this example, enter **7** for Bin Location, then **s** for Low Range and **<RETURN>** for Hi Range.

These selections now instruct the computer to re-calculate parameters only for those stock items that have a Commodity Code = **m and** a Bin Location = **s.**

Values for Low and Hi Ranges may be truncated for "wild-card" searches. For example, to select all items that have a description starting with "abc", just enter **abc <RETURN>.**

The system will now display:

0= Save Selection Criteria
1= Re-enter Selections *

Press **0** to Save, and continue, or **1** to Cancel and re-enter.

The system will now display: 0=Exit 1=Perform Functions *

Press **0** to Cancel and Exit from Re-calculation Function or **1** to Perform the Re-calculations. Note:**This is the last opportunity you have to cancel the function.**

The system will now perform the Re-calculations for all items specified. The screen will indicate: **Reading P/N** and whether or not it is **Selecting P/N.**

To STOP the process during the run, press **s** to Stop, then **c** to Continue or **q** to Quit.

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When complete, the system will return back to the Function Menu.

Note: No report is generated for this process. Therefore, you should maintain a log of which items were selected for Re-calculation on a given run.

Sub-Menu Detail:

1) Re-calculate Daily Usage

If this function is selected, it uses the current value in **Monthly Issues**, divides it by 21 (average number of days in a month) to derive a daily usage. This daily usage is then multiplied by **Average Cost** to get a **Daily Dollar Usage.**

Daily Dollar Usage is important for controlling inventory. It identifies which items account for the largest percentage of your sales volume and therefore justifies tighter control. These are known as "A" Items; that is, those items that have a high Daily Dollar Usage. The cut-off for categorizing "A" parts is a parameter in the General Information File (see Page III-25).

2) Zero Monthly Issues

If this function is selected, the **Monthly Issues** quantity will be zeroed out. (If function 1 is also selected, daily usage is re-calculated before the monthly issues are zeroed out.)

This resets the field for accumulating issues for the next month.

Note: Month-end reports such as the Sales Analysis Report should be run before performing this function.

3) Re-calculate ROL

The Re-Order Level (ROL) is a key parameter in scientific inventory management. It is calculated as follows:

ROL = [Leadtime (Days) + Safety Stock (Days)] X Daily Usage

The ROL represents the quantity of parts to be used over the leadtime to acquire additional parts. The purpose of the Re-Order Level is to trigger an order at a precise time. When the **Available Balance** (see description in Section II) falls below the ROL it indicates replenishment stock should be ordered.

If this function is specified, the ROL will be automatically calculated based on the order **Leadtime** for the part, **Safety Stock** indicated in the General Information File, and the **Daily Usage** of the part.

4) Re-calculate EOQ

The Economic Order Quantity (EOQ) represents the theoretical optimum quantity to order, considering these factors:

a) Cost of Ordering
vs.
b) Cost of Holding Inventory

These two cost factors change in different directions as the order quantity changes, as shown in the diagram on the following page.

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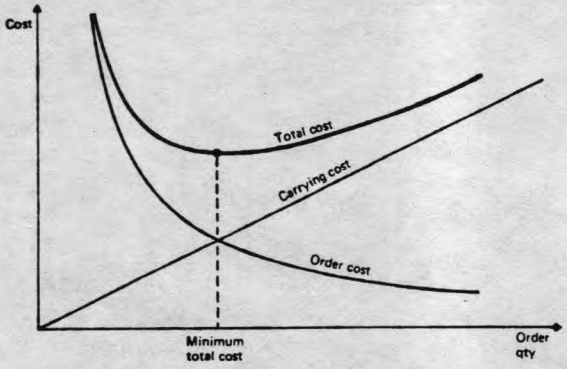

Analysis of the two major cost elements, order and carrying costs, determines the order quantity that will result in the lowest total cost

The larger the quantity ordered the greater the cost of holding inventory, and the smaller the cost of ordering (due to fewer orders over time). The smaller the quantity ordered, the smaller the holding cost and the larger the ordering cost. The optimum order quantity per part can be found by minimizing the total of the costs involved for each part. The Wilson Lot Size Formula is used to calculate this optimum order quantity, then the quantity is modified to be a minimum number of days stock (at the current daily usage) as indicated in the General Information File, or a maximum number of days stock of 65 days.

A more detailed discussion of EOQ is presented in Section II.

If this function is specified, the EOQ will be automatically calculated based on the Ordering Cost and Holding Cost indicated in the General Information File, and the Daily Usage and Average Cost of the part.

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5) Zero Y-T-D Issues

If this function is selected, the Year-To-Date Issues quantity will be zero-ed out.

This resets the field for accumulating issues for the next year.

Note: Year-end reports such as the Sales Analysis Report should be run before performing this function.

3) Print Reports

Purpose: To print any of the following operating and management reports:

- Stock Status Report
- Sales Analysis Report
- Price Catalog
- Shortage Report
- Re-Order Report
- Physical Inventory Report
- Inventory Summary Report

When: Monthly or when needed

Features: This reporting function provides the flexibility to manage inventory by exception. By utilizing the powerful **Select** option, the user can run any of the above reports on the entire Inventory data base or any subset of the Inventory.

An **Inventory Summary** Report is automatically produced with any other report requested. This Inventory Summary provides a comprehensive display of the firm's inventory - offering the Inventory Control Manager a real "tool" to help manage inventory dollars.

Sub-Menu Overview:

1) Stock Status Report
2) Sales Analysis Report
3) Price Catalog
4) Shortage Report
5) Re-Order Report
6) Physical Inventory Report
7) Inventory Summary

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The system will give you the option of selecting one of these reports by displaying:

0=Exit
Enter Report Number *

The system will then display:

0=All Items
Enter No. of Selection Fields *

Enter **0** to select (and process) All Items on the Inventory data base, or a number between **1** and **3** to specify the number of fields you want to use to select the subset of inventory records. For example, enter **2**:

The system will now display:

Field No.	Low Value	Hi Value
**	*******	*******
**	*******	*******

Field Selections:

1	p/n	2	stk#	3	desc	4	uom
5	v/c	6	lead	7	loc	8	pbds
9	retl	10	ret2	11	ret3	12	cost
13	usag	14	soh	15	soo	16	res
17	rol	18	eoq	19	m-is	20	y-is

Now, enter Field No. as **1** through **20**. In the example cited earlier, to select Commodity Code, enter **5**, then the Low Range and Hi Range for the search. In this example enter: **m** for Low Range and **m** for Hi Range. The first selection parameter is now specified. You may also enter <RETURN> for Hi Range, in which case it will automatically use the value place in Low Range. To specify the second selection parameter in this example, enter **7** for Bin Location, then **s** for Low Range and <RETURN> for Hi Range.

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These selection options now instruct the computer to re-calculate parameters only for those stock items that have a Commodity Code = **m** and a Bin Location = **s.**

Values for Low and Hi Ranges may be truncated for "wild-card" searches. For example, to select all items that have a description starting with "abc", just enter **abc <RETURN>.**

The system will now display:

0= Save Selection Criteria
1= Re-enter Selections *

Press **0** to Save, and continue, or **1** to Cancel and re-enter.

The system will now display: 0=Exit 1=Print Report *

Press **0** to Cancel and Exit **1** to Print the report.

The system will now print all items specified. The screen will indicate: **Reading P/N** and whether or not it is **Selecting P/N.**

To STOP printing at any time, press **s** to Stop, then **c** to Continue or **q** to Quit.

When complete, the system will return back to the Main Menu.

Note: The **Inventory Summary** is automatically generated at the end of each report.

Sub-Menu Detail:

The details of each report along with a photo-reduced sample is shown in Section VI - Sample Reports.

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4) Inventory File Maintenance

Purpose: To Add, Change, or Delete an item to the Inventory data base

When: When needed

Features: This function provides the capability to Add new inventory items to the file, Change any field on an existing inventory item, or Delete an inventory item from the file.

The function will also produce three reports: Inventory List, Inventory Balances, and Part Number Listing.

Sub-Menu Options:

01) Add (Add new items to file)
02) Chg (Change or Delete items)
03) Print (Print Reports)

The system will give you the option of selecting the above functions. For function **01** and **02** the following screen format is used:

INVENTORY FILE MAINTENANCE/INQUIRY

```
01)Part Number      : ******
02)Stock Number     : ********
03)Description      : ****************
04)Unit of Measure  : *
05)Vend/Comm Code   : **
06)Leadtime (days)  : ***
07)Bin Location     : *
08)PB/Desc Codes    : ****
09)Price 1          : *********
10)Price 2          : *********
11)Price 3          : *********
12)*Avg Unit Cost   : *********
13)*Daily Avg Usag  : *********
14)Stock-on-Hand    : *********
15)Stock-on-Order   : *********
16)Reservations     : *********
17)*Re-Order Level  : *********
18)*Econ Order Qty  : *********
19)*Monthly Issues  : *********
20)*Yearly Issues   : *********
```

Sub-Menu Details

These computer edits are performed to Add or Change data fields.

The following edits are perfomed:

Data Field	Edit
Part Number	Must be numeric (no alpha characters) Must pass the check-digit test Must be within range established on the General Information File Must not be on Inventory data base (Add) Must be on Inventory data base (Change)
Stock Number	May be alpha/numeric No edits performed
Description	May be alpha/numeric No edits performed
Unit/Measure	Must be entered Blank defaults to e, each Use the following coding: **a** carton **l** lbs **b** box **p** package **c** case **r** ream **d** dozen **s** gross **e** each **t** ton **g** gallon **x** other
Ven/Comm Co.	Suggested use as Commodity code May also be used as a Vendor code May be alpha/numeric No edits performed
Leadtime (days)	Indicates the number of days to replenish this item from release of a Purchase Order to Receipt into stock Must be numeric

Note: A special "quick-add" feature allows you to Add new items without using the check-digit. Enter either a 4-digit or 5-digit number with "*" as the last character. This will automatically calculate the check-digit and add the record to the file.

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Data Field	Edit
	May be alpha/numeric No edits performed
Price Break/ Disct.code	4-digit code indicating the following: xyzz

where x - price break code corresponding to Price 2
y - price break code corresponding to Price 3
zz - additional percentage discount (used by Order Entry - CBM 8000)

Price Break Codes:

1 1	**a** 10	**i** 50	**q** 132
2 2	**b** 11	**j** 60	**r** 144
3 3	**c** 12	**k** 72	**s** 200
4 4	**d** 20	**l** 84	**t** 500
5 5	**e** 24	**m** 96	**u** 1000
6 6	**f** 30	**n** 100	**w** 2000
7 7	**g** 36	**o** 108	**x** 4000
8 8	**h** 48	**p** 120	**y** 5000
9 9			**z** 10000

Example: To code three prices;
Price 1 for quantity 1 - 5
Price 2 for quantity 6 - 23
Price 3 for quantity 24 - up

Code: **6e00**

If there is an optional 10% discount over-and-above the price break then,
6e10

Price 1	Retail Unit Price (with no price break) or for quantity less than first price break
Price 2	Unit Price after first price break code

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Price 3	Unit Price after second price break code Prices must be numeric Maximum value: $9999.999 (Note: Prices are maintained to 3-decimal places for accuracy)
*Average Unit Cost	Optional field System will automatically calculate average, based on incoming cost of new receipts Must be numeric Maximum value: $9999.999 (Note: Cost is maintained to 3-decimal places for accuracy)

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Data Field	Edit
*Daily Avg Usage	Automatically calculated by system Must be numeric
Stock-on-Hand	Must be numeric Maximum value: 9,999,999
Stock-on-Order	Must be numeric Maximum value: 9,999,999
Reservations	Must be numeric Maximum value: 9,999,999
*Re-Order Level	Optional System automatically calculates Must be numeric Maximum value: 9,999,999
*Econ Order Qty	Optional System automatically calculates Must be numeric Maximum value: 9,999,999
*Monthly Issues	Optional System automatically calculates Must be numeric Maximum value: 9,999,999
*Monthly Issues	Optional System automatically calculates Must be numeric Maximum value: 9,999,999

To delete inventory items, use **02** Change, then press d **<RETURN>** and enter the code **del.**

For function **03** Print Reports, the system will display:

1=Balances 2=List 3=Part Numbers *

Press **1** to print **Inventory Balances,** press **2** to print **Inventory List,** press **3** to print a list of valid **Part Numbers.**

Detailed descriptions and photo-reduced report samples are shown in Section VI.

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5) General Information File

Purpose: Enter or change the **Company, Password,** and **Inventory Parameters. It also initializes the Inventory File. Note:** the first time this option is selected, the system will automatically prompt you for creation of the General Information File. Once the file is created, you will be prompted for generation of the initial inventory file. Subsequent uses of this option will be to change the General Information only.

When: As needed

Procedure:

There are several special feature codes in the General Information File which provide the system with very sophisticated capabilities:

Field	Allowable codes	Comments
Company	Enter your company name	
System date	Not used	This date is set automatically each time you turn the system on.
Password	Enter your password	
P/N Start	Enter the Starting P/N (without check-digit)	System is pre-set to start at 1001.
P/N End	Enter the Ending P/N (without check-digit)	System is pre-set to end at 1000. This parameter MAY BE changed at any time. It is suggested that this limit be as low as possible until more capacity is needed. BY KEEPING THE END P/N LOW, PROCESSING TIME FOR THE SYSTEM WILL BE FASTER.
Gen'l Ledger Accounts	Enter the account code as XXXXX.X or leave 00000.0	G/L account interface will be a later enhancement of the system

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Field	Allowable codes	Comments
Class A $Cut	Dollar cut-off for Class "A" Parts	group the high dollar volume parts for tighter inventory control
	Parts with a Daily Dollar usage => than this param are Class "A"	
Class B $Cut	Enter cut-off value for Class "B"	System is pre-set to 50

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Field	Allowable codes	Comments
Min EOQ Days	Enter the minimum number of days supply for calculating the EOQ System is pre-set to 10 Days	EOQ is calculated using the Wilson Lot Size formula, then adjusted to be a OPTIMUM quantity based on minimum EOQ Days supply of parts OR a maximum quantity based on 65 days supply of parts (using the Daily Usage)
Safety Stock Days	Enter the number of days of safety stock System is pre-set to 5 days	This parameter is used to calculate the ROL. Increasing Saftey Stock will increase average inventory
Holding % Cost	Enter 2-digit percentage used for holding cost System is pre-set to 20%	This parameter is used in the EOQ calculation formula to balance holding cost vs. ordering cost.
Order Cost Cost	Enter cost to process 1 order System is pre-set to $15	This parameter is used in the EOQ calculation formula to balance holding cost vs. ordering cost

To change any field, enter **field number** then the new information. To print out a listing of the **General Information File**, enter **99.**

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6) Configuration File Maintenance

Purpose: Provides the capability to describe the specific equipment configuration to the MAS 64 Inventory Management application, including the ability adjust the parameters if your configuration changes.

When: For one disk unit (e.g. 1 1541 or 1 4040)

- Whenever you change disks, printers or monitors

For two disk units (e.g. 2 1541's or 2 2031's)

- Every time you turn your hardware on you will have to change the unit number of your second disk unit
- Whenever you change disks, printers or monitors

Sub menu: 0) Exit Processing, after configuration is defined

1) Change Configuration, to define or change equipment configuration

FIELD	ALLOWABLE CODES	COMMENTS
Monitor	C4	color 40-column
	C8	color 80-column
	M4	monochrome 40-column
	M8	monochrome 80-column
Disk	80	1 1541 or 1 2031
	81	1 4040
	90	2 1541's or 2 2031
Printer	M	Matrix; 1525, 4022 or 8023P
	Q	NEC Spinwriter, Diablo, or any properly interfaced printer

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2) Change Unit Number, to assign unit numbers when two disk units are used. Note: Be sure secondary disk is turned off (e.g. the disk unit to be used for data files) before selecting Sub Menu item 2.

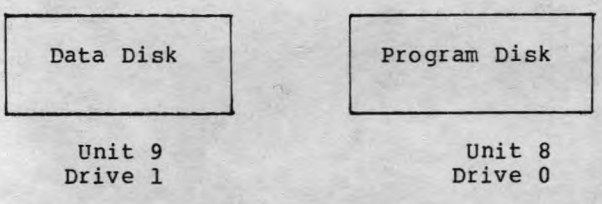
   The system will prompt you to turn the primary unit (i.e., unit used for program disk) off and the secondary unit on. Then press **<RETURN>** to change the secondary drive to unit 9.

   Note: The system assumes that the main drive is pre-set to device number 8, which is the way it is shipped from Commodore.

   It is recommened that you attach a label to each disk device, as follows:

   -Unit 8/Drive 0 (primary)
   -Unit 9/Drive 1 (secondary)

   Futhermore, to remain consistent with drive placement of the 4040, primary should be on the right and secondary on the left.



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IV. SYSTEM START-UP

A. Overview

The following procedure should be used to start-up the system at the beginning of the day.

B. Daily Start-up Sequence

1) Disconnect any peripheral equipment not used by the MAS 64 application (e.g Joy sticks, game cartridges, cassette units)

2) Turn on Commodore 64, floppy disk drives, and Printer.

   Note: If there are two drives, turn the primary drive on only

3) Insert **I/C Program Disk** (RED LABEL), side 1, in drive 0

4) Enter: **load "*",8<RETURN>**

5) Enter: **run<RETURN>**

   Read copyright notice carefully. Note that it is **unlawful to copy, duplicate, sell or distribute unauthorized copies of this software product disk--violators will be prosecuted to the full extent of the law.**

6) After the copyright message, you will be prompted to enter the current date. Enter the date using the mmddyy format only.

   Note: The system will automatically update the General Information File. If you do not want to change the date currently in the GIF, just press **<RETURN>.**

7) Enter:**pass**(or whatever your password is)

   Note 1: Though you enter the password at this point, it will be verified again as each application module is executed. Review your password entry carefully prior to responding **Y**-yes to the screen prompt.

   Note 2: The password can be changed by using General Information File **5** (refer to page III-25).

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8) Now you may execute any of the functions specified in Section III-**System Functions.**

Note: If you have more than 1 disk unit (e.g. two 1541's) you must execute **6** Configuration File Maintenance first.

C. Turning off the System

Note: Before turning off the system, you should press **<RETURN>** until you get the Systems Menu. Then, remove both disks, and turn off all components.

NEVER TURN THE SYSTEM OFF OR ON WITH FLOPPY DISKS IN THE DRIVES. THIS CAN CAUSE PERMANENT DAMAGE TO THE FLOPPY DISKS AND POSSIBLE LOSS OF DATA.

D. Initializing the System for first use

The following sequence should be used when you first implement the system:

- Obtain training from your dealer.
- Install Equipment as indicated in Commodore installation manuals
- Prepare an **Operating** copy of **I/C Data Disk**
  - . Place a new high quality disk in drive 0
  - . Enter:
    open15,8,15,"n0:I/C data disk,01"<RETURN>

    Note: use the number one (1) and zero (0)

    (If you get a file open error, repeat)
  - . Disk will start spinning
  - . Wait until disk drive light goes off
  - . Remove disk, label new disk with self-stick **I/C Data Disk** label.
- Start system up as indicated above in Par. B.
- Select **5** General Information File to create a General Information File and an initialized Inventory File on your new I/C Data Disk (See Section III-25)
- Assign Part Numbers as indicated in Section II.
- Now follow Daily Inventory Processing as indicated in Section V.

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V. INVENTORY MANAGEMENT PROCEDURES

A. Overview

All data processing systems have specific cycles for data entry, updating and reporting. The Info-Designs MAS-64 Inventory Management System is very flexible in design. The Inventory File may be updated as frequently as desired, usually "real-time" to obtain current information on your inventory stock status.

This section presents a guide for following appropriate operating procedures and the proper execution of computer procedures. We recommend that initially you follow this sequence exactly until you have developed experience on the system. Of course, you have the option of developing your own internal procedures once you are intimately familiar with the operation of the system.

B. Converting Inventory Records

The major effort to install the Inventory Management System is the initial committment to convert inventory records from the current system to the computerized system. Since conversion of a typical firm's inventory records to a computerized system can be a very time-consuming manual effort, **it is recommended that you start by converting only a small sample of parts first, perhaps 50-60, to test the entire operation of the new system and new procedures.** This test will also provide you with the proper "insight" to determine the best coding schemes for Commodity code, Bin Location, etc. ensuring that when you convert all your parts, the effort will produce the management results that you want.

You may wish to divide the data entry by lines or by types of inventory - entering the inventory in stages to reduce the wear and tear on yourself and your personnel. Either way, make sure all accounts are accurate. Be sure to enter all of your "A" or most important items first.

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Each inventory item requires a unique identification, known as the Part Number. This Part Number can be up to a six digit non-significant number (no alpha characters) with a check-digit as the last digit. A check-digit is the convention used in large inventory control systems to provide a "built-in" check on the integrity of a part number. The exact formula used by the Info-Designs MAS-64 Inventory Management System is not important. . .what is important is that a check-digit protects against most inadvertent typing errors when entering part numbers.

For example: The seed number **1001x** when passed through the check-digit routine will generate a check-digit of **7.** So, the full part number is **10017.** Any other number as the last digit will result in an **Invalid Checkdigit** error and the system will prompt to re-enter the number correctly.

To initially convert your inventory items to the check-digit system, you will need a list of valid part numbers. Before you run the list, establish the range of seed numbers that you will use in the system by using **5)** General Information File. The system comes pre-set from Info-Designs with a starting seed number of **1001** and an ending seed number of **1100** -- 100 numbers. **Whenever possible, you should compress the range of seed numbers needed in order to maximize the processing speed of the system.** The list of valid part numbers generated from these sample seed numbers is shown on the sample Part Number Report in Section VI.

Once you decide the seed range, run the Part Number Report by using Function **4)** Inventory File Maintenance, **3)** Print Reports, **3)** Part Numbers.

Use this P/N list to re-assign your existing inventory identification to the new system. You may want to keep your current identification as a cross-reference. If so, this number can be entered in the **Stock Number** field, which is an eight character alpha/numeric field in the Inventory File.

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Now, use the **Inventory File Maintenance Coding Sheet** (sample on page VI-17) to code the specific information for each part number. You will have to determine your own coding scheme for **Vend/Comm Code** and **Bin Location.** These are important fields as selection parameters. Choose your codes appropriately so that you will be able to extract reports by using a range of values within each code. For example, you may decide to use V/C to be commodity codes, and using the first character of the Stock Number to be Vendor code. Now, you will be able to extract inventory by either Commodity code OR Vendor code by using the **Select** capability in **3** Print Reports.

It is reasonable to take several weeks to convert your entire inventory file, depending on the manpower resources you have available and the size of your inventory.

C. Initializing Inventory Balances

There are several approaches to initialize inventory balances.

Once part numbers are **Added** to the system using **4** Inventory File Maintenance, **1** Add Function, you can generate a Physical Inventory Report, selected by Bin Location. From this report, you can perform a physical inventory by location of your stockroom and use the report as a turn-around document to update actual **Stock-on-Hand** (SOH) Balances.

Stock-on-Hand Balances can either be entered directly to the Inventory File by using the **4** Inventory Maintenance function (thereby by-passing audit trails) or more preferably by using **1** Transaction Entry, **4** Stock Adjustment Function. This approach will generate a detail audit trail of each part number's starting SOH Balance and change in SOH Balance.

The specific approach you use should be the result of careful planning with your dealer, your accountant, and your staff. Once you have initialized inventory balances, you **must maintain** all inventory movement using the procedures suggested below. **This is an important decision and a key management responsibility. The system will only produce inventory information if your people are well indoctrinated and motivated to use the new procedures and provide strict control over all inventory movement.**

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D. Daily Inventory Processing

Daily, the following types of procedures will normally be required:

- Process Stock Receipts
- Process Stock Issues
- Process Stock Orders
- Process Inventory Adjustments
- Process Customer Order Needs
- Back-up Inventory File

To start-up the computer, see Section IV - System Start-up.

1) Process Stock Receipts

Operating Procedure

a) As stock is received into the warehouse (stocking location), a document flow must be established to control that inventory was received. Normally this consists of a receiving log, where each stock receipt is logged.

b) At this receiving control point, the inventory received must be converted to the Part Number, and the following additional information must be captured:

- Quantity Received
- Quantity Rejected (failed QA inspection)
- Quantity Accepted (and available)
- Actual unit cost (if known and different from average cost)
- Reference number (log number, receiver, etc.)

c) Manual control procedures, as outlined above are critical to the success of any manual or computerized inventory control system.

Computerized Procedure

a) Use **1** Transaction Entry, **1** Stock Receipts Function to enter and print each receipt from the log entry referenced above. If the system is "on-line" all day, then the **Stock Receipts** Report generated by the computer may eliminate the need for a manual log.

Stock receipts may be processed throughout the day, depending on the frequency of receipts, the importance of updating the inventory file immediately, and the accessability of the computer.

Whenever updates occur, control of recording incoming stock is a **key** responsibility of your personnel.

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2) Process Stock Issues

Operating Procedure

a) As stock is issued (picked) from the warehouse (stocking location), a document flow must be established to control what inventory was issued. Normally, this consists of a pick report, where each stock issue is logged.

b) At this issuing control point, the following additional information must be captured:

- Quantity Issued
- Previously Reserved?
- Retail Price (if known and different from standard retail prices on the system)
- Reference Number (Invoice No., Order No., etc.)

Note: If you are using **Reservations** to commit parts to a given customer, then it is important that issues for previously reserved parts be indicated as such (in order to reduce the RES Qty in the file). See Paragraph 5 - Process Customer Order Needs.

c) Manual control procedures, referenced above are critical to the success of any manual or computerized inventory control system

Computerized Procedure

a) Use **1** Transaction Entry, **2** Stock Issues Function to enter and print each issue from the control maintained above. If the system is "on-line" all day, then the **Stock Issues** Report generated by the computer may eliminate the need for a manual log.

Stock issues may be processed throughout the day, depending on the frequency of issues, the importance of updating the inventory file immediately, and the accessability of the computer.

Whenever updates occur, control of recording outgoing stock is a **key** responsibility of your personnel.

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3) Process Stock Orders

Operating Procedure

a) One of the functions of the Inventory Management System is to provide reporting to management of Recommended Re-Orders and Shortage conditions. The **Re-Order** Report and **Shortage** Report, generated by **3** Print Reports, alerts management to the potential need to re-order stock.

UNDER NO CIRCUMSTANCES SHOULD YOU AUTOMATICALLY ORDER ANY REPLENISHMENT STOCK BASED PURELY ON A COMPUTER REPORT. THE ORDERING DECISION IS A MANAGEMENT DECISION. IT REQUIRES CAREFUL ANALYSIS OF THE CURRENT STOCK POSITION OF A PART, THE AVAILABLE BALANCE OF A PART AND THE COMPANY'S FUTURE NEED FOR STOCK. THE COMPUTER ONLY RECOMMENDS RE-ORDERS BASED ON CURRENT AND PAST INFORMATION, NOT FUTURE NEEDS.

THE USER IS SOLEY RESPONSIBLE FOR ORDERING STOCK, NOT THE INVENTORY MANAGEMENT SYSTEM, OR INFO-DESIGNS, INC. OR ANY FIRM AFFILIATED WITH INFO-DESIGNS IN THE SALE OF OR TRAINING FOR THIS SYSTEM.

b) Once management has decided to replenish stock, a purchase requisition should be initiated and approved by the appropriate personnel. The Controller or Purchasing Agent should then assign a company Purchase Order Number for this requirement.

c) At this control point, the following additional information must be captured:

- Part Number required
- Quantity Ordered
- Unit Cost (if known and differrent from average cost
- Vendor Name and Number
- Reference Number (e.g., PO Number)

d) Manual control procedures, referenced above are critical to the success of any manual or computerized inventory control system.

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Computerized Procedure

a) Use **1** Transaction Entry, **3** Stock Orders Function to enter and print each item ordered from the authorized Purchase Order. If the system is "on-line" all day, then the **Stock Orders** Report generated by the computer may be used to augment the above paperwork procedure.

Stock Orders may be processed throughout the day, depending on the frequency of orders, the importance of updating the **Available Balance** in the Inventory File immediately, and the accessability of the computer.

Whenever updates occur, control of recording stock orders is a **key** responsibility of your personnel.

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4) Process Stock Adjustments

Operating Procedure

a) As stock adjustments are required, either from stock found, taking a physical inventory, correcting order quantities, etc., these adjustments should be documented on an Adjustment Log.

b) At this control point, the following information must be captured:

- Part Number
- Quantity + or -
- Type of Adjustment (SOH, SOO, or RES)
- Reference (Log number, reason, etc.)

c) Manual control procedures, per above, are critical to the success of any manual or computerized inventory control system

Computerized Procedure

a) Use **1** Transaction Entry, **4** Stock Adjustment Function to enter and print each adjustment from the control maintained above. If the system is "on-line" all day, then the **Stock Adjustment** Report generated by the computer may eliminate the need for a manual log.

Stock adjustments may be processed throughout the day, depending on the frequency of issues, the importance of updating the inventory file immediately, and the accessability of the computer.

Whenever updates occur, control of recording adjustments is a **key** responsibility of your personnel.

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5) Process Customer Order Needs

Operating Procedure

a) One of the functions of the Inventory Management System is to provide the recognition that customer requirements cannot always be met immediately by filling an order from stock -- either due to lack of stock or the lag time to fill and pick the order.

The Inventory Management System recognizes this need by use of **Reservations.** Strickly speaking, **Reservations** represent a quantity of parts committed to a specific customer need against the on-hand and on-order balances to be issued in the short run. Thus, **Reservations** reduce the available balance of parts for satisfying other needs, thereby creating a more accurate picture of the real demand on a part.

Reservations are a key element in determining the point in time when you should replenish stock. The MAS-64 Inventory Management System considers **Reservations** in the calculation of an **Available Balance.**

In order to maintain **Reservations,** it is necessary to post "unfilled" orders to the Inventory Management System by using **1** Transaction Entry, **4** Stock Adjustments Function, and entering the demand as a positive RES Adjustment.

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6) Back-up Inventory File

Operating Procedure

a) Daily, or after any significant use of the Inventory System, the **I/M Data Disk** should be duplicated using the Back-up procedure outlined in Section III)

FILE BACK-UP'S ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SYSTEM. DUE TO THE NUMBER OF ACCESSES MADE TO THE INVENTORY FILE FOR INFORMATION, DISKS WILL WEAR OUT! IF A PROBLEM IS ENCOUNTERED, YOU MAY HAVE TO RECOVER BY USING THE LAST GOOD BACK-UP DISK AND RE-ENTERING ALL TRANSACTIONS SINCE THE LAST BACK-UP.

THEREFORE, A BACK-UP FILE SHOULD BE MADE AT LEAST DAILY, USING A DIFFERENT DISK FOR EACH DAY OF THE WEEK. THIS PROVIDES 5 DAILY BACK-UPS FOR PROTECTION.

b) After the copy is complete, remove the back-up disk, place an appropriate label on the disk, and store for the particular day of the week.

This procedure should be repeated each day the system is used to update any information.

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E. Monthly Inventory Processing

Monthly, the following types of procedures will normally be required:

- Print Reports
- Calculate Parameters
- Back-up Inventory File

To start-up the computer, see Section IV - System Start-up.

1) Print Reports

Operating Procedure

a) Monthly, or more frequently, any of the reports produced by the system may be run.

Of special importance are the **Re-Order Report** and **Shortage Report** which alert management to the potential need to re-order stock. These reports may be run weekly or more frequently, depending on your specific needs.

Computer Procedure

a) Use **3** Print Reports, then specify the report number and Select the sub-set of the Inventory File you want to use. See detail description in Section III, Page III-15.

2) Calculate Parameters

Operating Procedure

a) Monthly, or more frequently, the system should be used to re-calculate ordering parameters, and monthly, to re-set the Monthly Issue Counter.

For a detailed procedure, see Section III, Page III-12.

3) Back-up Disks

Operating Procedure

a) Monthly, additional Back-up Disks should be made and filed for safe keeping. Following the same procedure as the Daily Procedure.

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F. Year-End Inventory Processing

At year-end, the following procedure will normally be required:

- Zero-out Y-T-D Issue Counter
- Back-up Inventory File

To start-up the computer, see Section IV - System Start-up.

Computer Procedure

1) Zero-out Y-T-D Issue Counter

a) Use **2** Calculate Parameters, **7** Zero Y-T-D Issues to re-set the Issue Counter.

For a detailed procedure, see Section III, Page III-12.

2) Back-up Disks

Operating Procedure

a) Yearly, additional Back-up Disks should be made **(before zero-ing out Issue Counters)** and filed for safekeeping. Follow the same procedure as as outlined for Daily Processing.

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VI. SAMPLE REPORTS

This section contains sample reports from the MAS 64 Inventory Management System.

Each report is shown photo-reduced and included as an example of the key control documents you will use in managing and controlling your operation. Additionally, a brief profile of each report has been prepared to describe its purpose, menu item to be selected and frequency of preparation.

The index of reports is as follows:

Report Title	Page
Stock Receipts	VI - 2
Stock Issues	VI - 3
Stock Orders	VI - 4
Stock Adjustments	VI - 5
Inventory Summary	VI - 6
Stock Status Report	VI - 7
Sales Analysis Report	VI - 8
Price Catalog	VI - 9
Shortage Report	VI -10
Re-Order Report	VI -11
Physical Inventory Report	VI -12
Inventory Balances	VI -13
Inventory List	VI -14
Part Numbers	VI -15
General Information File	VI -16
File Maintenance Coding Sheet	VI -17

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Report Title:	**Stock Receipts**
Purpose:	Provides a detailed audit trail of all **Receipt** transactions
How:	1 Transaction Entry, 1 Stock Receipts
When:	Generated automatically
Key Data:	Shows stock position of the part before receipt and costs receipts at **Actual** cost (if entered) or **Average** cost on the file

```
**********************************************************************************
                        ABC ASSOCIATES                          PAGE 1
                        STOCK RECEIPTS
                          04/01/83 GEN 1
**********************************************************************************
P/N    STK NUMB DESCRIPTION UM VC : QTY RVD QTY REJ QTY ACC $COST/UNIT REFERENCE

10209  V-1001   5 1/4 DISKET B M  :      25       0      25   $ 32.500 A-4367
SOH=     0  SOO=     0  RES=    0 :   $ 813     $ 0   $ 813

10055  TIF-3003 TYPING STAND E F  :      15       0      15   $ 89.500
SOH=     0  SOO=     0  RES=    0 :  $ 1343     $ 0  $ 1343

10021  TIF-6166 COMM STATION E F  :      50       8      42  $ 140.500 A-43261
SOH=     0  SOO=     0  RES=    0 :  $ 7025  $ 1124  $ 5901

10069  TIF-EM1  ELECTRIC MOD E F  :      25       0      25   $ 72.000 A-12
SOH=     0  SOO=     0  RES=    0 :  $ 1800     $ 0  $ 1800

 4  TRANSACTIONS ENTERED   TOTALS : $ 10981  $ 1124  $ 9857

END OF REPORT
```

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Report Title:	**Stock Issues**
Purpose:	Provides a detailed audit trail of all **Issue** transactions (picks from the stockroom)
How:	**1** Transaction Entry, **2** Stock Issues
When:	Generated automatically
Key Data:	Shows stock position of the part before issue; costs issues at **Average** cost on the file and prices issues at appropriate retail price, based on the price break formula, or uses the retail price entered for the transaction; calculates **Gross Profit %** for each item

```
                          ABC ASSOCIATES                          PAGE 1
                          STOCK ISSUES
                          04/01/83 GEN 1
P/N    STK NUMB DESCRIPTION UM VC : QTY ISS RES  $ RETAIL   $ COST GP% REFERENCE

10021  TIF-6166 COMM STATION E F  :       4  N  $ 219.500  140.500  36 B-101
SOH=     42  SOO=      0  RES=     0 :            $ 878    $ 562

10036  TIF-6522 COMM STAND   E F  :       5  Y   $ 89.500   51.900  42 B-102
SOH=      0  SOO=      0  RES=     0 :            $ 448    $ 260

10069  TIF-EM1  ELECTRIC MOD E F  :       2  N  $ 125.000   72.000  42 B-103
SOH=     25  SOO=      0  RES=     0 :            $ 250    $ 144

10111  UNI-54MB CRT MINI-STA E F  :      10  N  $ 115.000   63.500  45 B-104
SOH=      0  SOO=      0  RES=     0 :           $ 1150    $ 635

 4  TRANSACTIONS ENTERED   TOTALS :            $ 2726   $ 1601   41

END OF REPORT
```

Report Title:	**Stock Orders**
Purpose:	Provides a detailed audit trail of all **Order** transactions
How:	1 Transaction Entry, 3 Stock Orders
When:	Generated automatically
Key Data:	Shows stock position of the part before vendor order; shows quantity ordered and costs at **Average** cost on the file or a specific cost entered for this order.

```
**************************************************************************
                          ABC ASSOCIATES                        PAGE 1
                          STOCK ORDERS
                            04/01/83 GEN 2
**************************************************************************
P/N     STK NUMB DESCRIPTION UM VC : QTY ORD   $ COST  VEND #        REFERENCE

10106   UNI-54A  CRT WORK STA E F  :      25   85.000  166659         A112
SOH=      0  SOO=      0  RES=     0 :  $ 2125

10021   TIF-6166 COMM STATION E F  :      50  140.500  434312         A114
SOH=     38  SOO=      0  RES=     0 :  $ 7025

--------------------------------------------------------------------------

 2  TRANSACTIONS ENTERED   TOTALS :  $ 9150

END OF REPORT
```

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Report Title:	**Stock Adjustments**
Purpose:	Provides a detailed audit trail of all **Adjustment** transactions
How:	**1** Transaction Entry
When:	Generated automatically
Key Data:	Shows stock position of the part before the adjustment; shows quantity adjustment and costs at **Average** cost on the file

```
**********************************************************************************
                        ABC ASSOCIATES                              PAGE 1
                      STOCK ADJUSTMENTS
                          04/01/83 GEN 2
**********************************************************************************
P/N    STK NUMB DESCRIPTION UM VC : SOH ADJ SOO ADJ RES ADJ          REFERENCE

10036  TIF-6522 COMM STAND   E F  :       5                         C1
SOH=    -5  SOO=     0  RES=    0 :   $ 260     $ 0     $ 0

10111  UNI-54MB CRT MINI-STA E F  :      10                         C2
SOH=   -10  SOO=     0  RES=    0 :   $ 635     $ 0     $ 0

 2  TRANSACTIONS ENTERED   TOTALS :   $ 895     $ 0     $ 0

END OF REPORT
```

Report Title:	**Inventory Summary**
Purpose:	This is the most <u>important</u> report in the system. It provides the Inventory Control manager with key information about the entire inventory file or any sub-set of inventory
How:	3 Print Reports, 8 Inventory Summary
When:	Automatically generated when other reports are requested, or printed when required
Options:	Use **Select** Function to extract report for any sub-set of the Inventory File. Report heading shows which **Select** Function was used.
Key Data:	Presents an overview of the entire inventory picture, including: stock-on-hand valued at average cost and retail (price 1); displays **Optimum SOH** (based on a theoretical inventory of Safety Stock + 1/2 EOQ); total daily usage (at cost); total inventory turns; etc. Provides a breakdown by Part Classes A, B, and C.

```
**********************************************************************
                        ABC ASSOCIATES
                     INVENTORY SUMMARY
                        ALL ITEMS SELECTED
                          04/01/83 GEN 2
**********************************************************************

TOTAL $ SOH (COST)    =      $ 8255    TOTAL NO OF ITEMS     =    10   100%
TOTAL $ SOH (RETAIL)  =     $ 13348    TOTAL ITEMS ON-HAND   =     4    40%
OPTIMUM $ SOH (COST)  =         $ 0    TOTAL ITEMS SHORT     =     2    20%

TOTAL $ SOO (COST)    =         $ 0    TOTAL ITEMS ON-ORDER  =     0     0%
TOTAL $ RES (COST)    =         $ 0    TOTAL ITEMS RESERVED  =     0     0%
TOTAL $ DAILY USAGE   =         $ 0    TOTAL INVENTORY TURNS=  0.000

TOT $ ISS-MO (COST)   =      $ 1600    TOT $ ISS-YR (COST)   =      $ 1600
TOT $ ISS-MO (RETAIL)=       $ 2870    TOT $ ISS-YR (RETAIL)=       $ 2870

                ****** INVENTORY STRATIFICATION ******

CLASSIFICATION              ITEMS     %       $SOH     % DAILY USE     %

  'A' (=> $  50/DAY)            0     0         $ 0     0       $ 0     0

  'B' (=> $  10/DAY)            0     0         $ 0     0       $ 0     0

  'C' (=> $   0/DAY)           10   100      $ 8256   100       $ 0     0

END OF REPORT
```

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Report Title:	**Stock Status Report**
Purpose:	Provides a detailed listing of the current stock position for each part
How:	3 Print Reports, 1 Stock Status Report
When:	Printed when required
Options:	Use **Select** Function to extract report for any sub-set of the Inventory File. Report heading shows what **Select** Function was used.
Key Data:	Shows average unit cost and extended Stock-on-Hand value

ABC ASSOCIATES PAGE 1
STOCK STATUS REPORT
ALL ITEMS SELECTED
04/01/83 GEN 2

P/N	STK NUMB	DESCRIPTION	UM	VC	S-O-H	S-O-O	RES	AV COST	$SOH VAL
10017	TIF-6465	COMM STATIO	E	F	0	0	0	110.000	0
10021	TIF-6166	COMM STATIO	E	F	38	0	0	140.500	5339
10036	TIF-6522	COMM STAND	E	F	-5	0	0	51.900	-259
10040	TIF-4321	PRINTER STA	E	F	0	0	0	125.000	0
10055	TIF-3003	TYPING STAN	E	F	15	0	0	89.500	1343
10069	TIF-EM1	ELECTRIC MO	E	F	23	0	0	72.000	1656
10106	UNI-54A	CRT WORK ST	E	F	0	0	0	85.000	0
10111	UNI-54MB	CRT MINI-ST	E	F	-10	0	0	63.500	-635
10209	V-1001	5 1/4 DISKE	B	M	25	0	0	32.500	813
10214	V-8001	8 IN. MINI	B	M	0	0	0	42.500	0

10 RECORDS PROCESSED

END OF REPORT

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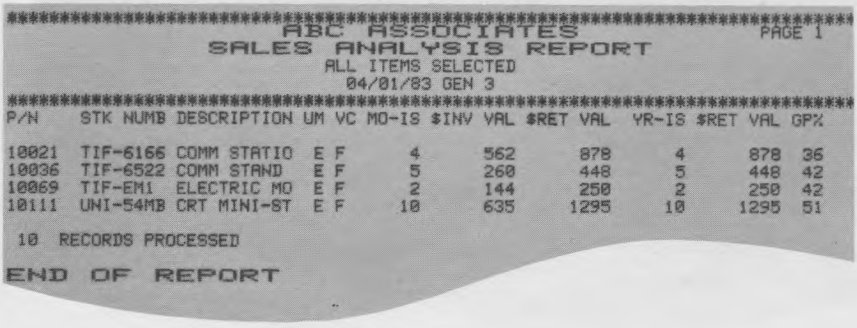
Report Title:	**Sales Analysis Report**
Purpose:	Provides a detailed listing of all sales made in the current monthly period (i.e., when Monthly Issues are > 0)
How:	3 Print Reports, 2 Sales Analysis Report
When:	Print at month-end before running 2 Calculate parameters
Options:	Use **Select** Function to extract report for any sub-set of the Inventory File. Report heading shows what **Select** Function was used.
Key Data:	Shows inventory value (cost) and retail value (price 1) of merchandise picked; shows gross profit margin.



ABC ASSOCIATES PAGE 1

SALES ANALYSIS REPORT

ALL ITEMS SELECTED

04/01/83 GEN 3

P/N	STK NUMB	DESCRIPTION	UM	VC	MO-IS	$INV VAL	$RET VAL	YR-IS	$RET VAL	GP%
10021	TIF-6166	COMM STATIO	E	F	4	562	878	4	878	36
10036	TIF-6522	COMM STAND	E	F	5	260	448	5	448	42
10069	TIF-EM1	ELECTRIC MO	E	F	2	144	250	2	250	42
10111	UNI-54MB	CRT MINI-ST	E	F	10	635	1295	10	1295	51

10 RECORDS PROCESSED

END OF REPORT

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Report Title:	**Price Catalog**
Purpose:	Provides a price catalog of stock items selected
How:	**3** Print Reports, **3** Price Catalog
When:	When required
Options:	Use **Select** Function to extract report for any sub-set of the Inventory File. Report heading shows what **Select** Function was used.
Key Data:	Shows price breaks by quantity range and unit of measure; if additional discount is available, it shows discount %

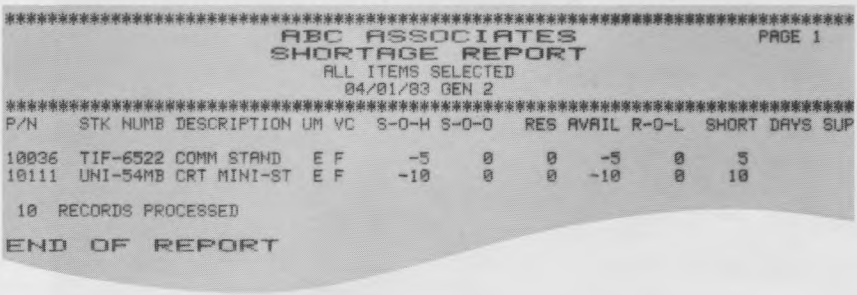
ABC ASSOCIATES PAGE 1
PRICE CATALOG
10017<= P/N <=10214
04/01/83 GEN 2

P/N	STK NUMB	DESCRIPTION	VC	QTY BREAK	UNIT PRICE	DISC%	UNIT/MEASURE
10017	TIF-6465	COMM STATION	F	1- UP	189.000	00	EACH
10021	TIF-6166	COMM STATION	F	1- UP	219.500	00	EACH
10036	TIF-6522	COMM STAND	F	1- 2	89.500		EACH
				3- 5	79.500		
				6- UP	73.950		
10040	TIF-4321	PRINTER STAND	F	1- 2	215.000		EACH
				3- 5	190.000		
				6- UP	175.000		
10055	TIF-3003	TYPING STAND	F	1- 2	175.000		EACH
				3- 5	163.000		
				6- UP	157.500		
10069	TIF-EM1	ELECTRIC MOD	F	1- 2	125.000		EACH
				3- 5	110.000		
				6- UP	98.000		
10106	UNI-54A	CRT WORK STATION	F	1- 5	185.000	10	EACH
				6- 11	172.000		
				12- UP	160.000		
10111	UNI-54MB	CRT MINI-STATION	F	1- 2	129.500	10	EACH
				3- 11	115.000		
				12- UP	100.000		
10209	V-1001	5 1/4 DISKETTES	M	1- 2	50.000		BOX
				3- UP	44.000		
10214	V-8001	8 IN. MINI DISK	M	1- 2	60.000		BOX
				3- UP	52.000		

10 RECORDS PROCESSED

END OF REPORT

Report Title:	**Shortage Report**
Purpose:	Provides a detailed listing of all stock items selected in a shortage (backorder) condition (i.e., RES is > SOH)
How:	**3** Print Reports, **4** Shortage Report
When:	Suggested frequency is weekly
Options:	Use **Select** Function to extract report for any sub-set of the Inventory File. Report heading shows what **Select** Function was used.
Key Data:	Shows current Available Balance (SOH + SOH - RES); number of units Short; number of days supply short (based upon Daily Usage)



```
                                                                    PAGE 1
                        ABC ASSOCIATES
                        SHORTAGE REPORT
                          ALL ITEMS SELECTED
                            04/01/83 GEN 2

P/N    STK NUMB DESCRIPTION UM VC  S-O-H S-O-O   RES AVAIL R-O-L  SHORT DAYS SUP

10036  TIF-6522 COMM STAND   E F     -5     0     0    -5     0      5
10111  UNI-54MB CRT MINI-ST  E F    -10     0     0   -10     0     10

 10  RECORDS PROCESSED

END OF REPORT
```

Report Title:	**Re-Order Report**
Purpose:	Provides a detailed listing of all stock items selected in a potential re-order condition (i.e., AVAIL is < ROL)
How:	**3** Print Reports, **5** Re-Order Report
When:	Suggested frequency is weekly At month-end, run <u>after</u> **2** Calculate Parameters to utilize the latest Daily usage, re-calculated ROL, and re-calculated EOQ
Options:	Use **Select** Function to extract report for any sub-set of the Inventory File. Report heading shows what **Select** Function was used.
Key Data:	Shows current Available Balance (SOH + SOO - RES); recommended Order Quantity (EOQ); days supply of the order (based upon Daily Usage)

```
**********************************************************************************
                        ABC ASSOCIATES                          PAGE 1
                      RE-ORDER REPORT
                         ALL ITEMS SELECTED
                          04/01/83 GEN 2
**********************************************************************************
P/N    STK NUMB DESCRIPTION UM VC  S-O-H S-O-O   RES AVAIL R-O-L  E-O-Q DAYS SUP

10036  TIF-6522 COMM STAND   E F     -5     0     0    -5     0     5
10111  UNI-54MB CRT MINI-ST  E F    -10     0     0   -10     0    10

 10  RECORDS PROCESSED

END OF REPORT
```

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Report Title:	**Physical Inventory Report**
Purpose:	Provides a detailed listing of all stock items selected for verifying inventory counts
How:	**3** Print Reports, **7** Physical Inventory Report
When:	Suggested frequency is quarterly
Options:	Use **Select** Function to extract report for any sub-set of the Inventory File. Report heading shows what **Select** Function was used.
Key Data:	Shows current Stock-on-Hand and Unit-of-Measure; provides a turn-around document for making stock-on-hand adjustments

```
**********************************************************************************
                        ABC ASSOCIATES                          PAGE 1
                  PHYSICAL INVENTORY REPORT
                          ALL ITEMS SELECTED
                           04/01/83 GEN 2
**********************************************************************************
P/N    STK NUMB DESCRIPTION UM VC LOC REC SOH  ACT SOH

10017  TIF-6465 COMM STATIO  E F    A      0 .......  EACH
10021  TIF-6166 COMM STATIO  E F    A     38 .......  EACH
10036  TIF-6522 COMM STAND   E F    A     -5 .......  EACH
10040  TIF-4321 PRINTER STA  E F    A      0 .......  EACH
10055  TIF-3003 TYPING STAN  E F    A     15 .......  EACH
10069  TIF-EM1  ELECTRIC MO  E F    A     23 .......  EACH
10106  UNI-54A  CRT WORK ST  E F    A      0 .......  EACH
10111  UNI-54MB CRT MINI-ST  E F    A    -10 .......  EACH
10209  V-1001   5 1/4 DISKE  B M    S     25 .......  BOX
10214  V-8001   8 IN. MINI   B M    S      0 .......  BOX

 10  RECORDS PROCESSED

END OF REPORT
```

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Report Title:	**Inventory Balances**
Purpose:	Provides a detailed listing of all stock item balances
How:	**4** Inventory File Maintenance, **03** Reports, **1** Balances
When:	Printed when required
Options:	No Options
Key Data:	Shows all quantity fields in the Inventory File; provides a verification document for current inventory status

ABC ASSOCIATES PAGE 1
INVENTORY BALANCES
04/01/83 GEN 2

P/N	STK NUMB	DESCRIPTION	UM	S-O-H	S-O-O	RES	R-O-L	E-O-Q	M-IS	YR-IS	$D-USAGE
10017	TIF-6465	COMM STATION	E	0	0	0	0	0	0	0	0.000
10021	TIF-6166	COMM STATION	E	38	0	0	0	0	4	4	0.000
10036	TIF-6522	COMM STAND	E	-5	0	0	0	0	5	5	0.000
10040	TIF-4321	PRINTER STAN	E	0	0	0	0	0	0	0	0.000
10055	TIF-3003	TYPING STAND	E	15	0	0	0	0	0	0	0.000
10069	TIF-EM1	ELECTRIC MOD	E	23	0	0	0	0	2	2	0.000
10106	UNI-54A	CRT WORK STA	E	0	0	0	0	0	0	0	0.000
10111	UNI-54MB	CRT MINI-STA	E	-10	0	0	0	0	10	10	0.000
10209	V-1001	5 1/4 DISKET	B	25	0	0	0	0	0	0	0.000
10214	V-8001	8 IN. MINI D	B	0	0	0	0	0	0	0	0.000

10 RECORDS ON FILE

END OF REPORT

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Report Title:	**Inventory List**
Purpose:	Provides a detailed listing of all stock item dollars
How:	**4** Inventory File Maintenance, **03** Reports, **2** List
When:	Printed when required
Options:	No Options
Key Data:	Shows all dollar fields in the Inventory File; provides a verification document for current inventory status

```
**********************************************************************************
                          ABC ASSOCIATES                          PAGE 1
                          INVENTORY LIST
                             04/01/83  GEN 0
**********************************************************************************
P/N    STK NUMB DESCRIPTION UM VC LT B PB/D  PRICE 1  PRICE 2  PRICE 3  AV COST

10017  TIF-6465 COMM STATION E F  15 A       189.000    0.000    0.000  110.000
10021  TIF-6166 COMM STATION E F  15 A       219.500    0.000    0.000  140.500
10036  TIF-6522 COMM STAND   E F  15 A 36     89.500   79.500   73.950   51.900
10040  TIF-4321 PRINTER STAN E F  10 A 36    215.000  190.000  175.000  125.000
10055  TIF-3003 TYPING STAND E F  15 A 36    175.000  163.000  157.500   89.500
10069  TIF-EM1  ELECTRIC MOD E F  15 A 36    125.000  110.000   98.000   72.000
10106  UNI-54A  CRT WORK STA E F  30 A 6C10  185.000  172.000  160.000   85.000
10111  UNI-54MB CRT MINI-STA E F  30 A 3C10  129.500  115.000  100.000   63.500
10209  V-1001   5 1/4 DISKET B M  10 S 3      50.000   44.000    0.000   32.500
10214  V-8001   8 IN. MINI D B M  15 S 3      60.000   52.000    0.000   42.500

 10  RECORDS ON FILE

END OF REPORT
```

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Report Title:	**Part Numbers**
Purpose:	Provides a listing of valid part numbers
How:	**4** Inventory File Maintenance, **03** Reports, **3** Part Numbers
When:	Printed when required
Options:	No options
Key Data:	Starts with the part number seed (defined in the General Information File) and adds a calculated check-digit

ABC ASSOCIATES PAGE 1
PART NUMBERS
03/01/83 GEN 4

10017	10021	10036	10040
10055	10069	10074	10088
10093	10106	10111	10125
10130	10144	10159	10163
10178	10182	10197	10209
10214	10228	10233	10247
10252	10266	10271	10285
10290	10303	10318	10322
10337	10341	10356	10360
10375	10389	10394	10406
10411	10425	10430	10444
10459	10463	10478	10482
10497	10509		

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Report Title:	**General Information File**
Purpose:	Provides a listing of the General Information File
How:	5 General Information File, 99 Print
When:	Printed any time parameters are changed, except for date
Key Data:	Prints all fields in the file

```
**********************************************************************
                    ABC ASSOCIATES                          PAGE 1
          GENERAL INFORMATION FILE
                       04/01/83
**********************************************************************

                    COMPANY: ABC ASSOCIATES
                    SYSTEM DATE : 04/01/83
                    PASSWORD : PASS
                    DATA DRIVES  : 1
                    DR1-P/N START: 1001
                    DR1-P/N END  : 1050
                    INV ACCT     : 14130.0
                    INV ADJ ACCT : 00000.0
                    SALES ACCT   : 31190.0
                    CLASS A $CUT : 20
                    CLASS B $CUT : 2
                    MIN EOQ DAYS : 3
                    SAFETY STK DY: 5
                    HOLDING % CST: 15
                    ORDER COST   : 10

END OF REPORT
```

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Report Title: **File Maintenance Coding Sheet**

Purpose: Provides an input coding form for converting inventory to the computerized system

How: Use for **Adding** new parts to the system

When: When adding new parts to the system

Key Data: Contains all fields in the Inventory Master File

INVENTORY MASTER FILE

FILE MAINTENANCE CODING SHEET

DATA ELEMENT	DESCRIPTION	INPUT CODE
1 PART NUMBER	NUMERIC PART NUMBER WITH CHECK-DIGIT	_____
2 STOCK NUMBER	VENDOR STOCK NUMBER (ALPHA/NUMERIC)	_____
3 DESCRIPTION	BRIEF DESCRIPTION OF PART	_____
4 UNIT OF MEASURE	A CARTON, B BOX, C CASE, D DOZEN, E EACH, G GALLON, L LBS, P PACKAGE, R REAM, S GROSS, T TON, X OTHER	_
5 VEND/COMM CODE	(LOCAL USE)	__
6 LEADTIME (DAYS)	TIME FROM ORDER TO RECEIPTS	___
7 BIN LOCATION	(LOCAL USE)	_
8 PRICE BREAK CODES/ DISCOUNT CODE	CODE UP TO 2 PRICE BREAK CODES WHICH CORRESPOND TO PRICE 2 AND PRICE 3	__ __
	1 1, 2 2, 3 3, 4 4, 5 5, 6 6, 7 7, 8 8, 9 9	A 10, B 11, C 12, D 20, E 24, F 30, G 36, H 48
		I 50, J 60, K 72, L 84, M 96, N 100, O 108, P 120
		Q 132, R 144, S 200, T 500, U 1000, V 2000, W 3000, X 4000, Y 5000, Z 10000
		DISCOUNT CODE: 01 1%, 02 2%, ... , 99 99%
9 PRICE 1	UNIT PRICE (RETAIL)	_____.__
10 PRICE 2	PRICE AFTER FIRST PRICE BREAK CODE	_____.__
11 PRICE 3	PRICE AFTER 2ND PRICE BREAK CODE	_____.__
12 AVG UNIT COST	AVERAGE UNIT COST OF INVENTORY	_____.__
13 DAILY AVG USAGE	DOLLAR DAILY USAGE OF PART	_____.__
14 STOCK-ON-HAND		_____
15 STOCK-ON-ORDER		_____
16 RESERVATIONS	(CUSTOMER BACK-ORDERS)	_____
17 RE-ORDER LEVEL	SPECIFY OR LEAVE BLANK	_____
18 ECONOMIC ORDER QTY	SPECIFY OR LEAVE BLANK	_____
19 MONTHLY ISSUES	(SYSTEM MAINTAINS THIS FIELD)	_____
20 Y-T-D ISSUES	(SYSTEM MAINTAINS THIS FIELD)	_____

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VII. TROUBLESHOOTING GUIDE

Most of the diagnostic error messages that appear on the screen are edit messages and provide the operator with a warning that there is an error condition present. These errors are self-correcting since they lock-out an incorrect function or command. It is possible for an unexpected error to occur from which the system may not be able to recover.

The following pages contain a list of posssible errors, probable causes and appropriate actions. They should be used as a reference guide in the event an error occurs.

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ERROR MESSAGE	PROBABLE CAUSE	CORRECTIVE ACTION
No General Info File on System	The system requires a General Information File which contains the Company Name, password, and part number parameters This file: i/c gif is not on the Data Disk	Exit back to Main Menu, select 5 General Information File to create a GIF on the data disk
Wrong Password for this disk	Each disk may be assigned its own password for security of data	Check the password you entered when you first turned on your system to be sure it is the password for this disk. In the event that you changed a password on a data disk and don't recall what it is, follow these steps to re-create the General Information File on the data disk: Scratch file i/c gif as follows: Place Data disk in drive 0 Enter open 15,8,15,"s0:i/c gif" <RETURN> Now turn off system, turn system back on, load the system, select 5 General Information File to re-create a new GIF on the data disk.

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ERROR MESSAGE	PROBABLE CAUSE	CORRECTIVE ACTION
I/C Menu Not Found	Either you have the wrong disk or a bad disk	Re-insert I/C Program disk with Red Label up (Side 1) If above doesn't work then the program i/c000 is missing from your disk...use your Security Copy to run your system
No Part on File	Before you can post, you must use Inventory File Maintenance to Add at least one part number to the system	Select **4** Inventory File Maint. to Add part no's.
Disk Err# xx	Whenever a disk error occurs the system will print the error number and brief description	See your Floppy Disk User's Manual for list of error codes (Page 43 of VIC-1541 Manual)
Invalid Password	Password must be 4 characters System detected a password that was not 4 Characters	Input 4 character password If this error occurs in a Program other than the Main Menu, then you may have a hardware problem, or you may have a tape cassete connected to your system. Disconnect the tape unit, and re-start the system.

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ERROR MESSAGE	PROBABLE CAUSE	CORRECTIVE ACTION
Bad Configuration Data...See Manual	The configuration file is not present or contains an invalid configuration of hardware	The system will automatically execute Configuration File Maintenance to allow you to create and/or correct the file
Security Violated... See Manaual	A program was executed on your disk directly, instead of booting up through the Main Menu	Turn off system, then turn on, place side 1 of program disk in drive 0 and enter: load"*",8 <RETURN>, run <RETURN>
	A copy of the original program disk was made--causing security to be violated	The program disk **CANNOT BE COPIED!** Attempting to copy the disk may cause damage to the Original. **YOU MUST ORDER SECURITY BACKUP COPIES DIRECTLY FROM INFO-DESIGNS**
Disk Error #	Tampering with the security on the system may cause the error	Pull out disk(s), Re-Start system
System hesitates	Normal	Do nothing -- wait
System hangs	If, after a prolonged wait, the system totally hangs	Pull out disk(s) Re-start system
File data error in XXXXX	This error caused by a bad record with alpha data in a numeric field	Pull out disk(s) Re-start system If same error occurs, re-start using a back-up disk
Screen displays READY	Program came to an irrecoverable problem	Hit <SHIFT><CLR/HOME> together, then enter run<RETURN>
		If same error occurs, pull out disk(s) and re-start system

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ERROR MESSAGE	PROBABLE CAUSE	CORRECTIVE ACTION
Check that Disk is in Unit 9	Configurator File set for 2 single disk drives; first drive is Unit 8, second is Unit 9. System is looking for disk in Unit 9.	Make sure disk is inserted in Unit 9 Make certain that Disk Unit 9 was not turned off--the reason is when it is turned back on, it will default to Unit 8 again. You will have to use **6** Configuration File Maintenance to change the Unit Number back to 9
Can't Read Disk	Disk is not inserted in drive Drive door is not closed	Correctly seat disk in drive and close drive door
	Disk has not been formatted "NEWed" therefore the system can't read it	Insert formatted disk in drive If you don't have a formatted disk, turn off system, then insert a new high quality disk and follow directions in Section IV-D
Remove Write Protect on Disk	Each disk has adhesive tabs that may be placed over the notch -- to prevent writing	Remove the write-protect tab from your disk since the system must write on the disk If there is no tab and you still get this error... you may have a hardware problem with your disk drive. Call your dealer.

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SUMMARY OF CBM FLOPPY DISK ERROR MESSAGES

0	OK, no error exists.
1	Files scratched response. Not an error condition.
2-19	Unused error messages: should be ignored.
20	Block header not found on disk.
21	Sync character not found.
22	Data block not present.
23	Checksum error in data.
24	Byte decoding error.
25	Write-verify error.
26	Attempt to write with write protect on.
27	Checksum error in header.
28	Data extends into next block.
29	Disk id mismatch.
30	General syntax error.
31	Invalid command
32	Long line.
33	Invalid filename.
34	No file given.
39	Command file not found.
50	Record not present.
51	Overflow in record.
52	File too large.
60	File open for write.
61	File not open.
62	File not found.
63	File exists.
64	File type mismatch.
65	No block.
66	Illegal track or secctor.
67	Illegal system track or sector.
70	No channels available.
71	Directory error.
72	Disk full or directory full.
73	Power up message, or write attempt with DOS mismatch.
74	Drive not ready. (8050 only)

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IX. COMPATIBLE FORMS

The only forms approved for use with the Info Designs MAS 64 Inventory Management System are provided by Deluxe Computer Forms. Deluxe guarantees that their forms will run efficiently with your system. Deluxe provides economically priced forms produced within 3 days. This assures you of on-going forms availability. Complete ordering information and a list of Deluxe Computer Forms that are compatible with the remaining modules of the MAS Accounting System are provided below.

HOW TO ORDER

Call toll free 1-800-328-0304

(In Minnesota, call 1-612-483-7300)

or write:

Deluxe Computer Forms
530 North Wheeler Street
P.O. Box 43046
St. Paul, Minnesota 55164

LIST OF APPROVED FORMS FROM DELUXE

MAS Accounts Payable	Check No. 1002
MAS Payroll	Check No. 1000
MAS Accounts Receivable	Invoice No. 1300
MAS Accounts Receivable	Statement No. 1303

(Deluxe also carries a complete line of printout paper, green bar stock and word processing stationery. Call for details.)

TURNAROUND COMMITMENTS

Standard Service	3 Days
Custom Service	5 Days

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